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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,484	06/23/2003	Stefan Gruhl	5-1	1396

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Docket Administrator (Room 3J-219)
Lucent Technologies Inc.
101 Crawfords Corner Road
Holmdel, NJ 07733-3030

EXAMINER

MOORE JR, MICHAEL J

ART UNIT	PAPER NUMBER
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2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/601,484	Applicant(s) GRUHL ET AL.	
	Examiner Michael J. Moore, Jr.	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). However, on page 1, line 6 of the specification, the filing date "June 24, 2003" should be "June 24, 2002".

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 6/23/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Specification

3. The disclosure is objected to because of the following informalities: On page 14, line 31, the word "scheduler" should be "schedulers". Also, on page 15, line 2, the term "LCC-layer" should be "LLC-layer".

Appropriate correction is required.

Claim Objections

4. Claims 5-7 are objected to because of the following informalities:
Regarding claims 5 and 6, a "period" is needed at the end of each of these claims.

Regarding claim 7, on line 1, the phrase "of any" is not needed.

Appropriate correction is required.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

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unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,190,684. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following correspondences.

Regarding claim 1, "a method for improving in a multi-layer packet switching network or system quality of service (QoS) scheduling having a rate-conserving scheduling functionality based on two scheduling layers operating on two granularities in protocol data units (PDU) of at least one incoming data flow" corresponds to a "method of scheduling multiple data flows for quality of service adjustment" as well as "linking two schedulers which operate, respectively, on an upper and a lower protocol layer" in claim 1 of the above mentioned patent.

"Maintaining QoS requirements and determining a service order for the protocol data units by an upper scheduling layer" corresponds to "wherein each protocol data unit (PDU) of an incoming data flow to be transmitted is scheduled by the scheduler (PDU-scheduler) on the upper layer regarding pre-definable associated quality of service requirements into a priority list" in claim 1 of the above mentioned patent.

"Implementing packet switching based on constraints by a lower scheduler layer" corresponds to "serving the protocol data units (PDU) ... with regard to the defined priority order and dependent upon allocated radio resource constraints" as well as "wherein each protocol data unit (PDU) ... to be served by the scheduler (MAC-scheduler) of the lower layer" in claim 1 of the above mentioned patent.

"Selecting service ordered protocol data units on demand by the lower scheduling layer in dependence on these constraints for efficiently allocating timeslots for the data flows" corresponds to "serving the protocol data units (PDU) ... with regard to the defined priority order and dependent upon allocated resource constraints" as well as "the scheduler (MAC-scheduler) of the lower layer ... operating on the protocol data units (PDU) within the priority list" in claim 1 of the above mentioned patent.

Lastly, "serving the selected protocol data units by the lower scheduling layer" corresponds to "the scheduler (MAC-scheduler) of the lower layer ... operating on the protocol data units (PDU) within the priority list" in claim 1 of the above mentioned patent.

Claim 1 does not claim “dynamically creating transport block sets (TBS) to be transmitted to the physical layer (PHY-layer)”. Therefore, claim 1 merely broadens the scope of claim 1 of the above mentioned patent.

It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. See *In re Karlson*, 136 USPQ 184 (CCPA). Also note *Ex parte Rainu*, 168 USPQ 375 (Bd. App. 1969). The omission of a reference element whose function is not needed would be obvious to one skilled in the art.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Petras et al. (Reference “AB” cited in Applicant’s submitted IDS) (hereinafter “Petras”). *Petras* teaches all of the limitations of the specified claims with the reasoning that follows.

Regarding claim 1, “a method for improving in a multi-layer packet switching network or system quality of service (QoS) scheduling having a rate-conserving scheduling functionality based on two scheduling layers operating on two granularities in protocol data units (PDU) of at least one incoming data flow” is anticipated by the MAC/LLC scheduling method spoken of on page 904, column 2, line 39 – page 905, column 1, line 19.

"Maintaining QoS requirements and determining a service order for the protocol data units by an upper scheduling layer" is anticipated by the LLC scheduler (upper scheduling layer) shown in Figure 1 on page 905, that contains an entity for each priority level (service order) of the service strategy with the send buffers of the corresponding service category (QoS requirements) as spoken of on page 904, column 2, lines 46-48.

Lastly, "implementing packet switching based on constraints by a lower scheduler layer", "selecting service ordered protocol data units on demand by the lower scheduling layer in dependence on these constraints for efficiently allocating timeslots for the data flows", and "serving the selected protocol data units by the lower scheduling layer" is anticipated by MAC scheduler (lower scheduler layer) shown in Figure 1 on page 905, that uses its own send buffer states (constraints) and the capacity requests of terminals in order to determine the reservation of time slots for data transmission as spoken of on page 905, column 1, lines 11-19.

Regarding claim 2, "monitoring an achieved data throughput by the lower scheduling layer, and deducting a scheduling order in dependence of the monitored data throughput" is anticipated by MAC scheduler (lower scheduling layer) shown in Figure 1 on page 905, that uses its own send buffer states (indication of throughput) and the capacity requests of terminals in order to determine the reservation of time slots for data transmission as spoken of on page 905, column 1, lines 11-19.

Regarding claim 3, "strictly serving the protocol data units in dependence on definable precedence classes based on system constraints related to the protocol data

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units and/or defining at least one precedence semantics according to which protocol data units of different precedence classes are served” is anticipated by the determining of the transmission order of data cells in accordance with service categories (precedence classes) as spoken of on page 904, column 1, line 41 – column 2, line 12.

Regarding claim 4, “giving selectable protocol data units preferential service” is anticipated by the CBR relative urgency priority assignment spoken of on page 904, column 2, lines 3-9.

Regarding claim 5, “wherein the selectable protocol data units are of a real-time application” is anticipated by the CBR (real-time) relative urgency priority assignment spoken of on page 904, column 2, lines 3-9.

Regarding claim 6, “wherein the selectable protocol data units are of signaling traffic” is anticipated by the CBR (signaling traffic) relative urgency priority assignment spoken of on page 904, column 2, lines 3-9.

Regarding claim 7, “scheduling in the lower scheduling layer one selected protocol data unit from each data flow after another, or the step of scheduling in the lower scheduling layer the protocol data units from one selected data flow prior to the scheduling of the protocol data units from an other selected data flow” is anticipated by MAC scheduler (lower scheduling layer) that determines the reservation of time slots (scheduling) among different terminals (sending different data flows) and notifies the terminals of the slot reservations via Dynamic Slot Assignment protocol spoken of on page 905, column 1, lines 11-19.

Regarding claim 8, “defining in dependence on system constraints precedence classes, and providing for each precedence class a respective service order of selected protocol data units” is anticipated by the different service categories (precedence classes) with associated priority levels (service order) spoken of on page 904, column 1, line 41 – column 2, line 12.

Regarding claim 9, “ordering the protocol data units respectively in dependence on timeslot allocation constraints” is anticipated by MAC scheduler shown in Figure 1 on page 905, that uses its own send buffer states (constraints) and the capacity requests of terminals in order to determine the reservation of time slots for data transmission as spoken of on page 905, column 1, lines 11-19.

Regarding claim 10, “a transceiver in a multi-layer packet switching network or system” is anticipated by the base station (transceiver) shown in Figure 1 on page 905.

“At least a first and second scheduling means each of which is operating on a different granularity in protocol data units of at least one incoming data flow” is anticipated by the LLC scheduler (first means) and MAC scheduler (second means) shown within the base station of Figure 1 on page 905.

“Wherein an upper layer scheduling means comprises means for maintaining QoS requirements and for determining a service order for the protocol data units” is anticipated by the LLC scheduler (upper layer scheduling means) shown in Figure 1 on page 905, that contains an entity for each priority level (service order) of the service strategy with the send buffers of the corresponding service category (QoS requirements) as spoken of on page 904, column 2, lines 46-48.

Lastly, “wherein a lower layer scheduling means comprises means for implementing packet switching based system constraints, means for selecting service ordered protocol data units in dependence on these constraints for efficiently allocating timeslots for the data flows, and means for serving the selected protocol data units” is anticipated by MAC scheduler (lower layer scheduling means) shown in Figure 1 on page 905, that uses its own send buffer states (constraints) and the capacity requests of terminals in order to determine the reservation of time slots for data transmission as spoken of on page 905, column 1, lines 11-19.

Regarding claim 11, “a computer readable medium storing computer program instructions which are executable on a computer system in a multi-layer packet switching network or system” is anticipated by the MAC/LLC scheduling method performed by the system of Figure 1 containing programmable components as spoken of on page 904, column 2, line 39 – page 905, column 1, line 19.

“Maintaining QoS requirements and determining a service order for the protocol data units by an upper scheduling layer” is anticipated by the LLC scheduler (upper scheduling layer) shown in Figure 1 on page 905, that contains an entity for each priority level (service order) of the service strategy with the send buffers of the corresponding service category (QoS requirements) as spoken of on page 904, column 2, lines 46-48.

Lastly, “implementing packet switching based on constraints by a lower scheduler layer”, “selecting service ordered protocol data units on demand by the lower scheduling layer in dependence on these constraints for efficiently allocating timeslots

for the data flows", and "serving the selected protocol data units by the lower scheduling layer" is anticipated by MAC scheduler (lower scheduler layer) shown in Figure 1 on page 905, that uses its own send buffer states (constraints) and the capacity requests of terminals in order to determine the reservation of time slots for data transmission as spoken of on page 905, column 1, lines 11-19.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chin et al. (U.S. 6,490,298), Stacey et al. (U.S. 6,834,053), Yang et al. (U.S. 2002/0041566), Fawaz et al. (U.S. 6,970,424), Bernhard et al. (U.S. 2003/0095552), and Bauer et al. (U.S. 7,113,478) are other references considered pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571) 272-3168. The examiner can normally be reached on Monday-Friday (7:30am - 4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael J. Moore, Jr.
Examiner
Art Unit 2616

mjm MM

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